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Mathematics K





Course Introduction

Welcome to Mathematics K



Introduction

Mathematics is all around us. It is an integral part of everyday life. From cooking, cleaning, and home improvement projects, to decorating a room, buying necessities, and saving for retirement, math is involved in everything we do. No matter your personal thoughts or experience with mathematics in the past, it is important to be excited about mathematics with your student. The belief, "I wasn't good at math, so my student won't be either," or, "I don't have the math gene," has been disproven. While everyone has areas where they excel and struggle, math learning is now held to the same standard as literacy learning. In the 21st century, illiteracy is detrimental to an individual; the same is true for mathematical illiteracy. It is essential that young students value math the same way that they value reading. It is also essential that young learners begin an ongoing love for mathematical learning and success. What better time to start this mathematical appreciation than in kindergarten?

Kindergarten is an impressionable year, full of excitement and learning, laughter, and wonder. Five- and six-year-olds are setting a strong foundation for social, emotional, and academic learning in kindergarten. This year is truly pivotal to their growth and development. Expert educators state that there is no year that produces a wider range of academic readiness than kindergarten. This means that your student may already know some skills set forth in this course, but may struggle with others, which is to be expected. Because of this range in academic



readiness, the philosophy of "rehearsal teaching" is in play this year. Rehearsal teaching is the strategy that uses repetition to build content knowledge. Having your student go back and review certain "mastered" content helps them to build a stronger foundation for the future.

Understanding the Parent and Teacher Guide



The purpose of this Parent and Teacher Guide is to aid you as you help your student on the path to success.

This guide contains individual lesson pages, written to you, in order to supply you with the tools you will need to guide your student through each of the 180 days of Mathematics Kindergarten.

You will find clearly marked learning objectives for each day. These objectives were based off of national and state standards. You will also find lists of all the materials you need to facilitate your student's learning. After that, you will find designated sections to support you in the use of the curriculum.

A typical day's lesson will contain the following sections:





The **Activate** sections provide you with activities that you can use to help uncover your student's prior knowledge and get them excited about their upcoming lesson.



The **Engage** sections steer you to use both online and offline activities and provide you with tips to guide your student through their learning.



The Demonstrate sections support the ways your student will show their understanding of the content.

These pages, along with the remainder of the information you will find in this Course Introduction, will empower you to be an effective educational guide.

Course at a Glance

End of the Year Expectations for Mathematics Kindergarten

By the end of the year, and in order to be first grade ready, your student will have mastered the following concepts:

Number identification	The ability to recognize and correctly call out numeral names (e.g., 1, 2, 3)				
Rote counting	The ability to count to 100 by memory, in order, without errors				
Representing and writing numbers	The ability to accurately identify what a numeral represents (e.g., seeing six stars and knowing they represent the number 6)				
Comparing numbers and quantities	The ability to name more than and less than				
Comparing measurements	The ability to decipher longer/shorter, heavier/lighter, more than/less than				
Problem solving	The ability to solve simple addition and subtraction word problems				
Addition and subtraction	The ability to solve simple addition and subtraction equations				
Breaking down numbers	The ability to break down a number into all of its components (e.g., 5 is the same as $0 + 5$, $1 + 4$, $2 + 3$, $3 + 2$, $4 + 1$, and $5 + 0$)				
Basic geometry	The ability to identify and name the attributes of basic shapes				

NOTE: Please know that if your student has already mastered any of this content in preschool, it is not necessary to spend a significant amount of time on the previously mastered content in this course. It is, however, important to review the content so that the learning is not lost.

Course Assessments

Assessments in Mathematics Kindergarten look different from assessments in other grades and subjects. Many assessments are activity pages that can be printed, completed, and then scanned and uploaded for submission. Some assessments require you to note how your student performed on a certain skill. For instance, if your student is asked to count from 1 to 20, you will be asked to provide a statement on your student's performance.



Understanding How People Learn

Helping Your Student

You play an important role in your student's learning, and being able to effectively support the learning process is key. This section will provide you will additional helpful hints, beyond the individual lesson pages, to bring learning to life inside and outside the classroom.

Did you know? The brain recognizes the five senses in five different areas. It is best for all learners to tap into as many of these areas as they can, simultaneously. This approach is called a multisensory experience for students.

Understanding Attention Span: A good rule of thumb in understanding your student's attention span is to consider their age. Students are generally able to actively concentrate for one minute per age year. Therefore, a kindergartener will only be able to focus on one thing, without a cognitive shift, for about 5 to 6 minutes. At that point, change the way you present an activity to keep your student engaged. For example, a simple change from reading to acting out a task will help your student to



concentrate. You can also watch a video and pause it for a discussion. Alternating modes of learning will help your child stay engaged in the content.

Assess Prior Knowledge



It is always best to assess students' prior knowledge before they are introduced to a new topic. This simply means finding out what students already know (or think they know) about the topic. By knowing what your student knows, you are able to quickly review mastered content, uncover misconceptions, and learn where you need to slow down and provide better support.

Throughout the lessons pages of this guide, you will find a number of ways to activate your student's prior knowledge.

Besides the specific teaching strategies provided within the lessons, consider these tried and true staples of any educator's classroom.

- 1. Ask a focus question: Focus questions are written in a way that focuses the student's attention solely on the small task ahead and simply asks what they know.
- KWL Charts: Work with your student to complete the chart to the right. K – list what the student knows; W – list what the student wants to know; L – list what the student has learned about a given topic.
- 3. **3-2-1:** Ask your student to share three things they know about the topic, two things they would like to know, and one question related to the topic.

Know what I <i>Know</i>	Wonder what I <i>Want</i> to know	Learn what I <i>Learned</i>



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A Reason for Learning

Besides uncovering what your student already knows or doesn't know, it is important to set a reason for learning. Getting students excited about learning a new concept is half the battle to getting them to understand it. Introducing a topic in a fun, exciting way will cause students to want to learn more. Creating excitement can often be



accomplished through reading a book, watching a video, or playing a game. Along with uncovering your student's prior knowledge, these tools create curious learners who want to explore concepts even further.

Balancing Factual and Conceptual Learning

Factual learning is basically rote memorization of facts, terms, and content. **Conceptual learning** is a deeper understanding of a concept and can be better achieved through multisensory learning. To move from learning to true understanding, students need a balance of both types of learning, as each is of equal importance.

- To help your student build factual knowledge in Mathematics Kindergarten, consider the following points:
- Use number cards and flash cards to practice number sense.
- Consider learning both inside and outside the classroom. For instance, encourage math-related games. Counting out dinner items, counting toys while cleaning up, timing how fast your student can run around the house, or playing the card game War are all fun ways to practice math.
- Point out math everywhere you go. From the grocery store to driving down the road, show your student that math is all around them.

To support **conceptual learning**, consider concrete examples first, followed by pictorial representation. These concrete examples should always come before you ask your student to simply read about or memorize a fact or concept. For instance:

- Encourage hands-on activities in math. Use common household items as math manipulatives. These items can be toys, pieces of cereal, buttons, calendars, rulers, etc. By manipulating objects, students can more easily transfer the hands-on math learning to paper and pencil skills.
- When possible, choose games (Play Its) or videos (Watch Its) first while progressing through the lesson content. While games and videos may appear after the content within the course, it is always great to allow your student to engage with these items first. This type of engagement builds excitement; it encourages the student to share prior knowledge or ask questions; and it helps to build knowledge for students who are lacking experience in a certain concept. Often, you will hear your student say, "They talked about that in the video!" or other statements of excitement.





Develop Metacognition



Metacognition is a complex word for something that is part of our daily lives. Simply explained, "meta" means after or beyond, and "cognition" means the process of acquiring knowledge. Therefore, metacognition is something we do after we gain knowledge. The process of metacognition is about self-monitoring, self-evaluating, and self-regulating all types of thought.

When students gain knowledge, it is up to teachers and parents to help them build on their knowledge. Helping your student to develop metacognitive skills is essential.

To help build metacognition, ask your student these questions:

- What are you thinking?
- What do you wonder?
- What did you notice?
- What questions do you have?
- What does this remind you of?

- What are you trying to figure out?
- What are you picturing in your head?
- How are you feeling?
- What do you find interesting?
- What other concept does this connect to?

The goal is to eventually move away from asking your student these questions to your student stating them without being prompted. Eventually, your student will say: "I'm thinking, I notice, I wonder..."

The Art of Questioning

To inquire about something is to ask questions about it, to examine or investigate it, or to probe and explore it. A good rule of thumb when guiding your student's learning is to tell less and ask more. While you don't want a student to hit their frustration point, grappling with content actually helps a student to more effectively master that content. To aid them in their learning, consider asking guided questions. This type of open-ended questioning requires more than a one word answer. Lead your student through the content by posing good questions. A student will retain information longer if they discover the concepts themselves instead of begin told.



Empowered™ Courses: What You Need to Know



Lincoln Empowered[™] is a unique kind of curriculum. Courses are composed of learning activities called learning objects. A number of learning objects are presented together as lessons. Learning objects are individual pages and activities that provide students with the content and practice they need to master specific learning objectives, or goals, for a course. Students are often asked to demonstrate mastery of learning objectives by completing assessments.

Engagement

Students are engaged through various activities, videos, and simulations. Students may be asked to complete a task on paper, or they may engage with a variety of online activities. TextPoppers, for example, are found within the content as blue, bold text. Students can hover over these words with a mouse or click on them to see definitions of key terms and phrases.



Learning Objects

Ten different types of learning objects exist within Lincoln Empowered courses:



Read Its are the primary learning tools within a course. They contain all of the instructional information students need to demonstrate mastery of the granular learning objectives.

Practice Its are interactive activities that can be accessed online or offline. They provide the opportunity for students to check their understanding of the learning objectives.

Watch Its are learning tools that utilize videos to enhance the learning experience and bring abstract concepts to life for students.

Play Its are content-focused, interactive games that support learning.

Show Its are activities that provide the opportunity to show mastery of specific learning objectives.

Answer Keys are available to the instructors for all Show Its and Apply Its. They provide correct answers and detailed feedback that can be shared with students.

Assess Its are graded activities that allow students to demonstrate mastery of learning objectives and standards.

Reinforce Its are supplemental activities to assist students who may be struggling. They also offer a great review before taking assessments.

Extend Its provide additional content to extend student knowledge.

Apply Its are non-graded assessments that cover content from multiple lessons. Apply Its can be cumulative projects that allow students to demonstrate mastery of several learning objectives. Teachers can elect to make these gradable.



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Course Structure

Each Lincoln Empowered[™] course is structured in a similar manner. When you and your student enter a course, you will find a number of topic folders. These topics reflect the key concepts that your student will learn in a specific grade and subject. Each topic folder contains a number of lessons.

Each lesson (e.g. Lesson 1, Lesson 2) represents one day of learning. Lesson folders contain the content, or the learning objects. A set of learning objects is presented to help a student master the content.

The Lincoln Empowered approach to instruction allows students multiple opportunities to learn and master objectives, which leads to mastery of the standards. It is not necessary for a student to complete every learning object. The "Its" were created to appeal to different modalities. You will notice that some content repeats, giving students additional exposure to a concept before an assessment. If your student has mastered the concept, move on to the next objective. Work the curriculum to meet your student's needs. There is flexibility in the "Its" that allows for student choice and greater differentiation, which puts you and your student in control of the learning.

Course Resources

The first folder in your course is titled, "Course Resources." It contains a set of useful resources that will help your student begin the course. Start by reviewing the Supply List and Pacing Guide. Then, view some of the materials you will need throughout the course.

Tip: Print the Pacing Guide and use it as a checklist to track your student's progress.

Materials and Kits

An essential piece of learning mathematics is using math manipulatives. The Lincoln Empowered[™] materials kit provides many of the tools your student will need in order to succeed in math learning. Beyond the items in the kit, you may be asked to utilize common household objects. These objects may include pennies, pieces of cereal, buttons, etc.

Time to Get Started

You now have all the information you need to have a successful year. So, what are you waiting for? Log in to your course and get started!





Learning Objectives

The activities in this lesson will help your student meet the following objective:

1.1	FI			
		2	C	LC.

ball

• count to 10

Counting Sounds

Activate

- 1. Ask your student how high they can count.
- 2. Have your student count while making sure they do not skip or repeat numbers.



- 1. Begin with the **Read It** and read the steps to your student.
- 2. As an alternative, have your student practice counting to 10 by hopping each time they say a number.
- 3. You can also throw a ball back and forth while counting out loud. Consider miscounting on your turn to see if your student can catch your error.



- 1. Next, move on to the Show It and have your student complete the activity.
- 2. Finally, use the Show It AK and work with your student to check their answers.

Topic Counting to 100

Learning Objectives

The activities in this lesson will help your student meet the following objective:

Materials

10 pieces of candy

• count from 1 to 10 by memory

Rote Counting to 10



- 1. Ask your student to name their favorite type of candy.
- 2. Ask your student how many pieces of the candy they would like to eat and have them count to that number.

Engage

- 1. Begin with the **Read It** and have your student follow along as you read the content aloud.
- 2. As your student works through the problems, consider having them point to each picture as they say the number.
- 3. Remember to have your student check their learning using the Self Check.
- 4. Next, view the **A Piggy Bank for 10 Watch It** together. Pause the video and ask your student what they are thinking. This will help them connect to the content.
- 5. You can also have your student count out the 10 pieces of candy from the Activate section as a connection to the video.
- 6. Continue the lesson by having your student open **Sensei's Sequence-Numbers Part One Play It** and play the game. Feel free to play multiple times.



- 1. Now that your student has practiced counting, move on to the **Show It** and follow the directions.
- 2. Finally, use the **Show It AK** to work with your student to check their answers.



Learning Objectives

The activities in this lesson will help your student meet the following objective:

		-	
1.1			
	C-L-	- I	

10 objects

• count backward from 10 to 1

Counting Backward from 10

Activate

- 1. Ask your student if they have ever counted backward.
- 2. Have your student think about a time when they could count backward. Examples may include counting down from 10 on New Year's Eve or counting down for a rocket launch.

Engage

- 1. Begin with the **Read It** and follow the directions for counting backward.
- 2. You can have your student practice by writing the numbers in reverse order or by finding 10 objects and counting backward as they touch each object.
- 3. Remember to have your student check their learning using the Self Check.

Demonstrate

- 1. Now that your student has practiced, move on the **Show It** and follow the directions.
- 2. Finally, use the **Show It AK** and work with your student to check their answers.

Topic Counting to 100

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- count aloud from 0 to 10 using a number line
- count aloud from 1 to 10 using a hundreds chart

Materials

- number line 1-10
- printed hundreds chart
 - red crayon

Number Line - Ten

- Activate
 - 1. Explain to your student that they are going to learn to use a number line to help them count and keep numbers in order.
 - 2. Say the numbers "4, 6, 5, 7, 8" to your student. Ask them if a number is out of place and have them say the numbers in the correct order. Explain that a number line will help them see this order correctly.

Engage

- 1. Begin with the **Read It** and follow the directions for counting using a number line.
- 2. Now, open the **Number Lines Watch It** and make note of the username and password provided on the Discovery Education image. Click the link for the video and enter the provided username and password to watch.
- 3. To practice, ask your student to touch each number on the number line as they count each number aloud.



- 1. Next, move on to the **Show It** and follow the directions to complete the activity.
- 2. Finally, use the **Show It AK** and work with your student to check their answers.

Hundreds Chart - Ten



- 3. Ask your student if they have ever seen a hundreds chart. Get them excited to use a chart that shows all of the numbers between 1 and 100.
- 4. Print a hundreds chart and have your student color the numbers 1 through 10 red on the first row of the chart.



- 1. Begin with the **Read It** and follow the directions to count using a hundreds chart.
- 2. Have your student use the red row on the hundreds chart to practice counting from one to ten.
- 3. Ask your student to touch each number on the hundreds chart as they say it aloud.



- 1. Now that your student has practiced, move on to the **Show It** and follow the directions.
- 2. Finally, use the **Show It AK** and work with your student to check their answers.

Topic Counting to 100

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

LESSON 5

- count aloud from 0 to 20 using a number line
- count aloud from 1 to 20 using a hundreds chart

Materials

- number line 1-20
- ruler
- tape measure
- 20 objects
- printed hundreds chart
- orange crayon

Number Line - Twenty



- 1. Help your student find objects in the house that resemble a number line, such as a ruler or tape measure.
- 2. Have your student point to each number and count on the number line through 20.

Engage

- 1. Begin with the **Read It** and follow the directions to complete the activity.
- 2. Have your student find 20 small objects to line up on a ruler or tape measure. Then ask your student to practice counting aloud as they touch each object.



- 1. Next, move on to the **Show It** and have your student complete the activity.
- 2. Finally, use the **Show It AK** and work with your student to check their answers.

Hundreds Chart - Twenty



- 1. Have your student color the second row of the hundreds chart orange (numbers 11-20).
- 2. Ask your student if they know how many rows they will look at on the hundreds chart if they count to 20.



- 1. Begin with the **Read It** and follow the directions to complete the activity.
- 2. Ask your student to use the orange row on the hundreds chart to practice counting from 11-20.



- 1. Now, move on to the **Assess It** and follow the directions to demonstrate your student's knowledge.
- 2. Open the **Assess It** and have your student complete the activity. When they are finished, submit the numbers they missed by scanning the document or taking a photo of it and uploading it to the Dropbox. If your student did not miss any numbers, write "All correct" on your paper and submit it via the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.